

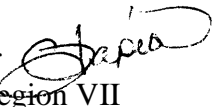


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101  
12 JUL 2004

**MEMORANDUM**

**SUBJECT:** National Remedy Review Board Recommendations for the Hastings Ground Water (OU 14 - Former Blaine NAD) Superfund Site

**FROM:** Cecilia Tapia, Director   
Superfund Division, Region VII

**TO:** Jo Ann Griffith, Chair  
National Remedy Review Board

In response to your January 27, 2004, memorandum, we provide the following information on the comments of the National Remedy Review Board's (NRRB) review of the proposed cleanup action for the Hastings Ground Water (OU 14 - Former Blaine NAD) Superfund site in Hastings, Nebraska. The Board's comments are in italics.

1. *The Board package indicated that the air sparging pilot study was so effective that the technology was employed for long-term operation under a removal action at another Operable Unit. Yet air sparging and other in-situ technologies that looked technically feasible were eliminated from further consideration. The Region indicated at the meeting however that there were technical limitations and prohibitive costs associated with these in-situ technologies. The Board recommends that the decision documents better describe why these technologies were not retained for further evaluation.*
- 1) The technologies pilot tested at the MW 115B site were effective on a limited scale. The contamination at the test site was confined to a very small plume area. We determined that the technologies would not effectively address the large NAD-wide contamination plumes (over six square miles of area of various depths of contamination). Containment with extraction and treatment were identified as the common elements of the proposed alternatives in the Feasibility Study. As conditions change throughout the implementation of the selected alternative and if it is determined that in-situ treatment methods have applicability to the site, such treatment methods could be employed via a Record of Decision (ROD) amendment.

2. *The Board package provided no information concerning the potential presence of non-aqueous phase liquid (NAPL) contaminants in the ground water system. The presence of NAPL could significantly change the estimated efficiency and time to attain the RAOs for the remedies considered. Therefore, the Board recommends that the Region review existing data, consider whether additional investigation is necessary, and document either the data indicating that NAPL is not and could not be present as a source of contamination to the aquifer or document how the proposed remedy does consider the presence of NAPL and its ramifications on remedy selection. If NAPL is present, the Board also recommends that the design incorporate that information.*
  
- 2) Investigations at the NAD have not identified “free product” contamination. None of the contaminant concentrations approach solubility saturation levels which would suggest the possibility of a NAPL. Soil Vapor Extraction (SVE) removal actions have been conducted at several volatile organic compound (VOC) source areas to address contaminated vadose zone soils. Ground water monitoring data collected during the ground water remedial action will be evaluated to verify that our completed SVE actions have effectively removed the VOC source contamination from the vadose zone soils.
  
3. *Insufficient information was presented to the Board concerning perchlorate and 1,4-dioxane. In regard to perchlorate, the Board was informed that the only well **not sampled** for perchlorate was the well near the rocket test area where one would most likely expect to find it. The Board understands that sampling for 1,4-dioxane, often a stabilizer in 1,1,1-TCA which is a site-related contaminant, was not done. The presence of either of these contaminants has the potential to significantly affect the remedy as neither is removed from water using the proposed treatment technologies. Therefore, an additional form of treatment may be required before the water could be used at the planned power plant. The Board recommends that before the Proposed Plan is released that the ground water in the rocket test area be sampled for perchlorate, and a number of wells in areas with significant 1,1,1-TCA contamination be sampled for 1,4-dioxane.*
  
- 3) The well identified in the comment was sampled for perchlorate in the May 2004 sampling event. Region VII also sampled for 1,4-dioxane at the same time in wells where we would expect to find it.
  
4. *The Board notes that the pumping rates evaluated for Alternatives 2 and 3 are very similar (4050 gpm vs. 4140 gpm). However, Alternative 3 has twice as many pumping wells as Alternative 2, without a considerable reduction to the overall restoration time-frame. With double the number of wells, the Board would have expected a higher pumping rate and a shorter cleanup time. There was no information presented to the Board to indicate whether these alternatives were optimized for cleanup time. The Board recommends that additional extraction well configurations and pumping rates which optimize cleanup time-frame be evaluated, which may also lead to cost savings.*

- 4) The ground water model indicated that extraction from an increased number of wells located throughout the contaminated plumes did not provide significantly reduced remediation time. The modeled pumping rates for Alternatives 2 and 3 were similar because of aquifer draw down limitation. Attacking “Hot Spots” likewise did not result in significantly reduced remediation times. This may be the result of our extensive widespread plumes with relatively low levels of contamination (compared to the very small areas of elevated contamination concentrations). According to the model, extraction from wells at the hot spots may have actually reduced the effectiveness of down gradient wells by slowing the flow of the contamination to the containment boundary. Additionally, while the Feasibility Study included proposed alternatives based on selected well locations/pumping rates, optimization efforts will continue through the remedial design.
5. *The Board notes that the package did not include any recent data on plume expansion rates. Data on plume expansion rates, based on recent monitoring data, should be considered and may be used to update modeling results. This information can be very useful in investigating the effectiveness of source control, and in comparing alternatives and designing more cost-effective remedies. The Board recommends that the results of this analysis be incorporated into the description of the alternatives in the decision documents.*
- 5) Additional investigation, which will include plume expansion, is planned.
6. *The Board notes that an alternative that evaluated aggressive preferential pumping of hot spots without edge-of-plume pumping was not included. Such an alternative may present cost advantages or reduced cleanup time-frames and should be evaluated.*
- 6) Remedial alternatives that would potentially allow the area of contamination to expand violate the state’s anti-degradation policy for ground water of class RAC-1. Such a remedy would be difficult for the state to accept.
7. *Alternative 4 - “Focused Remediation” was screened out and not carried through for detailed evaluation. The Board package did not include an adequate rationale for this action. During the meeting, the Region explained that the alternative did not reflect a “hot spot” cleanup approach, as suggested by the “focused remediation” name/description. The Board recommends that, if Alternative 4 is presented in the decision documents, the purpose and goals of this alternative be more clearly and accurately described.*
- 7) The Focused Remediation Alternative employed a system of containment wells similar to the other containment alternatives. However, this alternative stopped active extraction prior to achieving Maximum Contaminant Levels (MCL) for the NAD Contaminants of

Concern (COCs). The concept was to extract for a limited duration and then allow the remaining contamination be remediated by natural processes. This alternative was screened out because it allowed for an unacceptable degree of plume expansion.

8. *The Board notes that the briefing package did not fully address the vertical extent of ground water impacted by VOCs and explosives, nor did the package address the competency of the confining unit underlying layer 6 of the stratigraphic model. Additionally, the conceptual design for the ground water recovery wells specified screened intervals with little technical explanation. The decision documents should clarify how the extraction well screen intervals are correlated to depth of contamination observed in the various ground water plumes.*
- 8) More specific information including the data for the selected alternative will be presented in the remedial design.
9. *The package presented to the Board indicated that surface water discharge would be used for the treated RDX stream if it is not acceptable for use at the power plant. Also, surface discharge of the VOC and RDX plumes are indicated if the power plant is not upgraded. The Region and State indicated at the meeting that beneficial use of water is important in this area. The Board recommends that an evaluation be made for allowing other beneficial uses for the treated water.*
- 9) We plan to explore reuse with appropriate state and local agencies including the local natural resource district.
10. *The supplemental cost details provided to the Board identify contingencies of 50% for direct and indirect costs and 25% for operational and maintenance costs. The source referenced in the documentation indicates that these percentages are from past experience and best engineering judgment. Since the resulting contingency costs are significant with respect to the total costs of each alternative, the Board recommends that additional detailed justification be provided for these assumed percentages.*
- 10) The Feasibility Study provides some support for its estimates, but additional supporting data will be requested. The referenced cost adjustment factors were applied to each alternative resulting in comparable estimates. As details of the selected remedy are determined and the level of uncertainty is reduced, more precise cost estimates will be possible in the remedial design.

11. *The package presented to the Board may have incorrectly identified “principal threat” wastes. Principal threats are those wastes that are highly toxic and mobile in the environment. Generally, ground water is not considered a principal threat unless NAPL is present. The Board recommends that the Region clarify what are the principal and/or low-level threats in accordance with OSWER Directive 9380.3-06FS, “A Guide to Principal Threat and Low-Level Threat Wastes.”*
- 11) We accept this correction of the package that the Region submitted. As the cited guidance notes, “Principal threat [as opposed to low-level threat] wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.... However, this concept of principal and low-level threat waste should not necessarily be equated with the risks posed by site contaminants via various exposure pathways.... [C]haracterizing a waste as a principal threat does not mean that the waste poses the primary risk at the site. For example, buried drums leaking solvents into ground water would be considered a principal threat waste, yet the primary risk at the site (assuming little or no direct contact threat) could be ingestion of contaminated ground water ... .”

cc: Army Corps of Engineers  
Nebraska Department of Environmental Quality